

METHODS AND COMPOSITIONS FOR DESULFURIZATION OF HYDROCARBON FUELS

ABSTRACT OF THE DISCLOSURE

Sulfur is removed from a hydrocarbon fuel via contact with a desulfurization agent; the
5 desulfurization agent is then regenerated (wherein sulfur is released) by exposing it to oxygen.
The sulfur removal and regeneration processes each can be carried out at relatively moderate
temperatures, *e.g.*, from 300 to 600°C, and pressure, *e.g.*, about 0.79 to about 3.5 MPa; and the
desulfurization agent can include a transition metal oxide, such as molybdenum oxide. The
process can also include the additional steps of cracking the hydrocarbon, separating high-
10 boiling and low-boiling fractions from the reaction product and contacting the lower-boiling
fraction with a secondary desulfurization agent.